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prehensiveness which distinguishes him, swept away several of the trifling divisions which have been erected between close kindred. Some ten orders have been merged in others, and more than a score of genera have been similarly dropped out. We can now call the little *Houstonia* by its old familiar name again, and forget the flavor of *Oldenlandia* in our mouths. Those who have measured the angles of orchid anther-glands to see what degree or proximity might entitle the bearer to this or that name, will find that *Gymnadenia* and *Platanthera* are no more; but that they resurrect in *Habenaria*. Whether an anther may turn its face or back to you will not now win for it an ordinal title of *Melanthaceæ*, for it belongs to the large number of *Liliaceæ*. And no one will be longer vexed with the protean forms of oak-leaves, which have swayed him between black and scarlet, for *Quercus tinctoria* is now only a variety of *Q. coccinea*. *Alsine*, *Mehr- ingia* and *Honkenya* are now *Arenaria*; *Oxalidaceæ*, *Balsaminaceæ* and *Limnanthaceæ* are now all *Geraniaceæ*; *Grossulaceæ* and *Parnassiaceæ* are now *Saxifragraceæ*. As an offset to this absorption of names, Dr. Robbins has increased the twelve species of *Potamogeton* of the last edition to twenty-three in this, with varieties enough to delight a Darwinian.

Dr. Gray has omitted the Mosses, Lichens, Fungi, and Algæ, and very properly, for they are specialties in botanical science. We hope that some day the long hoped for supplementary volume may appear, in which all these orders shall be treated with equal thoroughness and accuracy, as the Mosses have been by Sullivant. Tuckerman and Curtis have all the material for their respective orders.

The plates of the Sedges are new to this volume, and have all the finish and nicety of Sprague's drawings. The young botanists of this country are favored in having for the writer of their manual one of the great masters of their science. When our hand-books are written with the same learning and breadth of treatment which are given to the most abstruse and recondite works of science, there is certainly unusual incentive and unwonted means for effort and advancement at our disposal. — C. J. S.

NATURAL HISTORY MISCELLANY.

ZOOLOGY.

COMMON OBJECTS OF THE COUNTRY. — From our extensive piazza, the number and variety of birds that we daily behold are to me so

marvellous, that, at the very least, I cannot forbear giving you a bit of "gossip" about them. As I have before stated, we live in the country, and are therefore supposed, by the pitying denizens of brick and stone, to be rather destitute of resources, and having no immediate neighbors, to be very dull and lonely, — but such is not possible where so many birds, insects, and creeping things abound, that the very air seems instinct with life and motion.

Sitting upon the piazza at this moment, I am not without companions, for the Mud-wasps are building upon the window ledges, the little brown Wren is in the box beneath the eaves (having first ejected the Blue-bird and its eggs), and the Carpenter-bee has accumulated quite a heap of sawdust from the railing, which is bored in more places than one by her long galleries and passages. I can also see in the gravelled walk the ridges thrown up by the Mole, of which the common and star-nosed varieties have been captured here, and can detect in the grass the perforations of another animal of the rat or mouse kind, a sight of which has thus far been denied us, as our old dog seems to think them too appetizing to exhibit before they are devoured. We only know they are plentiful, and their depredations annoying. The dogs were less particular with a muskrat which came to an untimely end through their means last season; when also a plump young woodchuck, captured by the mowers, and which they were endeavoring to place in confinement, fell a prey to their murderous propensities.

What place can be devoid of excitement where turtles are discovered feasting in the strawberry bed, and where, in the sleeve of a cast-off garment hanging in the bathing-house, we once found the nest of a field-mouse, and with breathless delight watched the frightened mother, with her large deer-like eyes and graceful motions, as she crept timidly to the spot, and one by one removed her young to a place of safety?

What revery can be lonely which is liable to be broken off by the plaintive cry of the fish-hawks, wheeling and circling about their nest, which is reared upon the summit of a blasted pine, not thirty rods from the house, and who may be descried passing overhead at any hour of the day, with some inmate of the deep depending from their talons?

We are also visited by another huge bird, a pair of which sit motionless, through the summer afternoons, upon the edge of the salt-marsh, and are known among the country people by the euphonious title of Quawks. The only ornithological description at all agreeing with them is that of the Qua-bird or *Night*-heron; and yet we certainly see them as early as three in the afternoon. In the same vicinity

we occasionally see a blue crane, and another larger bird of the heron species, describing that peculiar motion attributed by negro minstrels to Nelly Bly,—

“When she walks she lifts her foot,
And then she puts it down,”

and verily, they treat their long red legs as something to be careful of, to be deposited gingerly upon the mud, and lifted again with due deliberation. In strong contrast is the motion of the sandpiper, two or three varieties of which are always to be found gliding so quickly over the rocks, that whether they run or fly is almost a problem. In one of our drives we once captured an infant piper, and I have seen few things more comical than that minute downy ball, adorned with bill and legs, seemingly out of all proportion. Not having always lived on the sea-shore, the foregoing birds are comparatively new to me, but I do not mean to neglect the more familiar ones who haunt the trees and bushes directly about the house,—the chipping sparrow who seeks his daily meal of crumbs upon the piazza, sometimes joined by the cat-bird,—the robin, oriole, and the cuckoo,—the pewee, martin, and swallow, who all have nests within our precincts,—the noisy bobolink, and in the season of cherries, which are abundant here, a countless crowd of chatters which it would be needless to enumerate.

I saw this spring one bird which I had never before seen,—the American Redstart,—which remained poised for a moment upon the piazza rail, so that we had a fair view of it. The ferruginous thrush, which seems quite as tame here as the robin, is almost new to me.

As the season advances, the golden-winged woodpecker and quail give themselves airs among the flower-beds on the lawn, so confident are they of not being molested; but at present we are interested in a family of owls who have frequented our trees for the last fortnight, and whose species I am unable to decide, unless it be the mottled owl. There are six in the family: the two whom we suppose to be the parents, rather object to being looked at, so that I have only had a good view of one, of which the following is a description,—back and wings of a sandy-red, with a white marking on the front of the wing similar to that on the wax-wing or cedar-bird; ears prominent, breast greyish speckled, and face ditto, with two dark lines extending from the base of the ears to the bill and enclosing the eyes. The four young ones, who generally sit side by side, and stare at us as long as we choose to stare at them, are all over of a silvery-grey, with less prominent ears. None of the company appear to be over seven inches high, and seem to haunt certain trees, where we can generally find them at any hour of the day, and they begin to be lively before sun-

set, often alighting upon the fence or the ground. We first discovered them by their peculiar hissing, like the spitting of a cat; the only other sound we have heard them emit is a faint "hoo-hoo," though while these six were in sight, we have heard the cry of the ordinary screech-owl in a grove at some distance.

Thus much for the owls, but when tired of Ornithology, we can resort to the insects, some of whom return the compliment by resorting to us; for we frequently find, in damp weather, a spider's web extending across the door (one in constant use), or from the inkstand to the ceiling.

The first week in May I found lying upon the ground a large chrysalis, which was at once placed with some earth in a vacant flower-pot, and on the first of July its inhabitant appeared, and proved a stranger to us; a large yellow moth with brown markings, and looking as if peppered with minute brown dots. After a close study of Harris's Insects, we made it out to be the imperial moth, *Dryocampa imperialis*. The specimen is a female, and has been condemned for the future to contemplate surrounding objects from the head of a large pin, in company with various others of its tribe.

And when we weary of insects, there are the reptiles, toads, snakes, and turtles; the latter all sizes and kinds,—huge snapping-turtles who inhabit a small pond, the shores of which furnish a home to the crested king-fisher, as well as the fish-hawk; ugly yellow land-turtles, and brook-turtles, in small compact boxes. I have witnessed on our own door-stone the phenomenon familiar to all naturalists, of a snake swallowing a toad, though in this instance he was not allowed to finish his meal in safety; but I have failed, in spite of all my efforts, thus far, to hear the song of the toad.

Finally, when reptiles fail, there is the beach with its shells and other waifs of interest, to say nothing of crabs, eels, and porpoises; but what is a greater marvel to me than all the rest is, that such a wealth of animal life should exist unmolested within twenty miles of New York city, and in such a populous resort, that one may turn from the contemplation of Nature to that of Fashion or Art in all their splendor and perfection,—fish-hawks one moment, and flounces the next,—water-fowl and water-falls in conjunction,—but—lest you should think I mean to rival the spider who spun from the inkstand to the ceiling, I will break my thread at once.—C. PIERREPONT, *Wry Nose*, N. Y.

THE TIGER-BEETLE.—The *Cicindela* represents among insects the character of the Tiger. Its large, powerful head, with its enormous scissor-like jaws, its light body, of elegant form and gay colors, together with its ferocious habits, prove its right to the name. The

number of species is very great, and they have been carefully studied, as they have ever been the favorites of entomologists.

They are usually of some shade of green, with metallic and purplish reflections, and marked with light-colored dots and short curved lines. The Tiger-beetle abounds in sunny paths, and breeds on the sandy shores of rivers, ponds, and the ocean, over which they swiftly fly, and run in chase of their prey. The larva (Fig. 1) is hideous in aspect. It has an enormous head, with immense jaws armed with teeth on the inside, while a large swelling on the ninth segment of the curved body, which ends in a horny, movable hook, gives it a grotesque and ugly appearance. This hook aids it in climbing up its deep hole, near the entrance of which it lies in wait for weaker insects. These holes are sunk perpendicularly in the sand, and have no waste dirt about the mouth, like ant or worm holes. Their occupants may be either

Fig. 1.



Fig. 2.

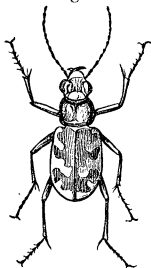


Fig. 3.

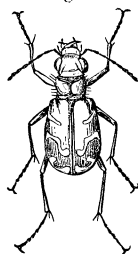


Fig. 4.

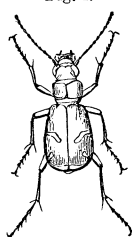


Fig. 5.



dug out, or on thrusting in a straw, will fiercely seize the intruding object with their hooked jaws, and, in the blindness of their rage, suffer themselves to be drawn out from their retreat.

While all our native species are ground beetles, there are others in the tropics which live, in the beetle state, on

Fig. 6.

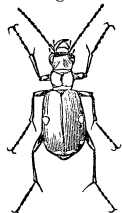


Fig. 7.



trees. Among our more common forms are the *Cicindela generosa* Dejean (Fig. 2), the largest of our New England species. The most common form is the *Cicindela vulgaris* of Say (Fig. 3). One of our most beautiful species is the *C. purpurea* of Olivier (Fig. 4), found flying about sunny walks; while the hairy-necked Tiger-beetle (*C. hirticollis* Say, Fig. 5), is a smaller species than the foregoing. Our most beautiful form is the six-spotted Tiger-beetle (*C. sex-guttata* Fabricius, Fig. 6), which is of a bright green color, ornamented with six spots on the wing-covers (*elytra*). It is often found in shady places not frequented by other

species. A much smaller species is the *Cicindela punctulata* Olivier (Fig. 7), which is dark bronze, and spotted on the elytra with white dots, in place of the more usual white dots and curved lines or lunules.

GEOLOGY.

THE CRINOIDAL BANKS OF CRAWFORDSVILLE, INDIANA.—Montgomery County, of which Crawfordsville is the county seat, belongs to the Sub-carboniferous formation, being just north of the northern out-crop of the Indiana and Illinois coal-fields. A large part of the country is covered with heavy drift. Rocks in place, however, crop out abundantly along Rock (Sugar Creek on some maps) River and its tributaries. These rocks are rich in fossils characteristic of the Sub-carboniferous strata: varieties of *Productus*, *Spirifer*, *Terebratula*, *Conularia*, etc.

But the fossils which have excited the most interest, and which have rendered this locality specially noted, are the beautiful Crinoidæ. Along the banks of this river are strata of limestone, made up almost entirely of the broken stems and arms of Crinoids, cemented by carbonate of lime, and occasionally containing heads finely preserved.

But the geological horizon in which the heads of Crinoids are mostly found, is a calcareous shale or sandstone, of quite limited vertical extent, not much exceeding two feet in thickness, and often but six or eight inches. In this the Crinoids are abundant, and in great perfection, the arms and basal plates being well preserved, with stems attached, and not unfrequently even the finest tentacula. They are mostly of the following types: *Actinocrinus*, *Cyathocrinus*, *Agaricocrinus*, *Platycrinus*, *Forbesiocrinus*, *Scapiocrinus*, *Zeacrinus*, and *Pentremites*. These Crinoid beds have been wrought by some of the citizens of Crawfordsville for fifteen or twenty years, prominent among whom, as most persevering and entitled to the greatest credit, both for exploring and working out specimens, is Mr. O. W. Corey. He has furnished beautiful specimens to the Smithsonian Institution, Harvard University, Yale College, Michigan University, Wabash College, and also to many private cabinets. These beds have been explored also by the students and professors of Wabash College, who have enriched her cabinet with choice specimens. The College secured, by purchase of Mr. Corey, several hundreds of perfect heads, finely wrought out, fit for the cabinet. The bank nearest to Crawfordsville is the most productive, but the same strata are found cropping out at Island Ford, on Offil's Creek, on Walnut Fork, on Black Creek, as well as at several other points on Rock River.

The most extensive excavations have been made by Mr. Charles